Final Project/Statistical Analysis Application Assignment
30 Points
DUE December 12th at 11:59 PM

Purpose

The purpose of this assignment is to help students understand statistical methods by requiring them to analyze a small set of quantitative data and report the results. This statistical analysis assignment allows students to display: (a) what they know about statistics and (b) what they are able to do with their knowledge of statistics.

Task

The assignment constitutes 35% of each student's grade. Students will formulate hypotheses, analyze data using appropriate statistical methods, interpret statistics, and use SPSS. The long-term goal of the application assignment is to help students acquire comprehension and application skills of statistical concepts learned in the course.

Directions

Read the two case studies below and use the appropriate statistical methods to answer the questions. You must use SPSS to complete the analyses. Use an alpha level of .05 for analyses. *Your assignment must be typed and include all SPSS printouts to receive full credit.* Please be sure to use correct statistical symbols where appropriate.

Case I.

The "Community Indicators 2" data (modified from Berman, 2007) includes assorted indicators of conditions in 98 cities across the United States. The dataset included median household income, total population (both from the 2000 U.S. Census), and total violent crimes (FBI, Uniform Crime Reporting, 2004) among others. In the sample, household income ranges from 26,309 (Newark) to $71,765 (San Jose). A measure of total violent crime per capita is calculated because larger cities are apt to have more crime. Using the dataset, examine whether median household income (variable: Median household income $) is associated with total violent crime (variable: violentcrime).

1. Write a few sentences describing your sample (e.g. total *N*, mean, frequencies, etc…). *See the print-out is not an acceptable response.*

2. Provide information on the relationship between your variables.
   a. Identify and interpret Pearson's correlation coefficient. Is this significant? *See the print-out is not an acceptable response.*
   b. If the Pearson's correlation found in 2a is significant, compute and interpret the coefficient of determination (r^2).

3. Data Analysis Method
   a. What data analysis technique will you use to examine whether median household income is associated with per capita violent crime and why?
   b. Provide your hypotheses in written format. *Do not solely provide the statistical notations.*

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c. Run your analysis. Provide the appropriate statistic(s) and state whether your results are statistically significant. *See the print-out is not an acceptable response.*
d. State whether the results support your null hypothesis (i.e. do you reject or fail to reject the null hypothesis). What does your decision about the null hypothesis tell you?

4. Discuss the implications of the study based on the statistical analysis you ran. What does it mean? What are the results telling you? How can the results inform public or foreign policy, public administration, international relations, international development, etc…? *This should be a few sentences to about a paragraph.*

5. Include all SPSS output. *You can submit your output in one of two ways: (1) copy the SPSS output and paste it into the same WORD document or (2) directly submit your SPSS output.*

Case II.

The "Community Indicators 2" data also includes information on racial/ethnic composition (variable: minority). Racial/ethnic composition is broken down categorically into either a high minority (1) or a low minority (2). Using the dataset examine if there is a statistically significant difference between high minority cities and low minority cities in regards to median household income.

6. Write a few sentences describing your sample (e.g. total *N*, *N for each group*, mean, frequencies etc...). *See the print-out is not an acceptable response.*

7. Data Analysis Method
    a. What data analysis technique will you use to examine whether there are differences in median household income between high minority and low minority cities and why?
    b. Provide your hypotheses in written format. *Do not solely provide the statistical notations.*
    c. Run your analysis. Provide the appropriate statistic(s) and state whether your results are statistically significant. *See the print-out is not an acceptable response*
    d. State whether the results support your null hypothesis (i.e. do you reject or fail to reject the null hypothesis). What does your decision about the null hypothesis tell you?

8. Discuss the implications of the study based on the statistical analysis you ran. What does it mean? What are the results telling you? How can the results inform public policy, public administration, international relations, international development, etc…? *This should be a few sentences to about a paragraph.*

9. Include all SPSS output. *You can submit your output in one of two ways: (1) copy the SPSS output and paste it into the same WORD document or (2) directly submit your SPSS output.*